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Richard Harrington photograph

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View from the Peak over part of Hong Kong with the mainland peninsula of Kowloon in the background. The Crown Colony of Hong Kong with a total area of 391 square miles, and a population of about 2,317,000 consists of a number of islands off the south-east China coast and a part of the opposite mainland. Hong Kong Island is eleven miles long and from two to five miles wide.

Hong Kong Looks to a Greater Future

by W. V. PENNELL

Photographs by Hedda Morrison unless otherwise credited.

HONG KONG has survived the period of tension and readjustment to the monumental events across the land border in China. In the calm and confidence it never lost even when the so-called Liberation Army of the Communists finally reached the border, it has been thinking quietly of what role it must play in the future. For a long time it prided itself on being the shop-window of democracy, in whose shops and warehouses were to be found all the infinite variety of Western wares. It never liked being called the show-window of democracy, because that has a political connotation, and Hong Kong eschews politics. It has little of its own beyond the parochial politics of the Urban Council. It is content to tolerate a remarkable degree of freedom among the partisans of this or that regime in China, but it does not allow itself to be more than superficially engaged. There is a dispassionate detachment about the insular Hong Kong mind which many quite fail to understand. That is a pity, because it expresses Hong Kong through and through — its ability to mind its own business and to combine a far-ranging economic vision and enterprise with a singular freedom from all political obsessions. In all its century and more of history it has preached and believed in no mission but trade. It was the old Factory merchants in Canton, not Hong Kong, that gave birth to the first political and cultural propaganda medium in the Society for the Diffusion of Useful Knowledge.

But in considering its present Hong Kong has come to the conclusion that it is more indispensable than ever both to the world as a whole and even to the new regime in China. It is the only really reliable and convenient pipeline through which China can send her own products to the markets

of the world, and receive in turn the non-strategic products of the outside world. It is, too, the only bridgehead across which its diplomatic and consular representatives may travel to and from the countries in South and South-east Asia with whom it has official relations. There have been little tests of strength and will, and on the whole they have ended quite happily. Now Hong Kong has ceased to worry about the present — only the thought of another great war creates a pause for reflection. Even in such a case there is a feeling that the great tidal waves of history which have raged all round it will move away northward and westward if and when they rage again.

The conflict of cultures between East and West has at long last ended. What is left now is a conflict of ideologies within the universal acceptance of the industrial civilization which is the latest expression of the

A view of a squatter colony near North Point. In spite of its overcrowded huts built of waste timber and scrap metal, it is a well organized if somewhat illegal community.

Shell





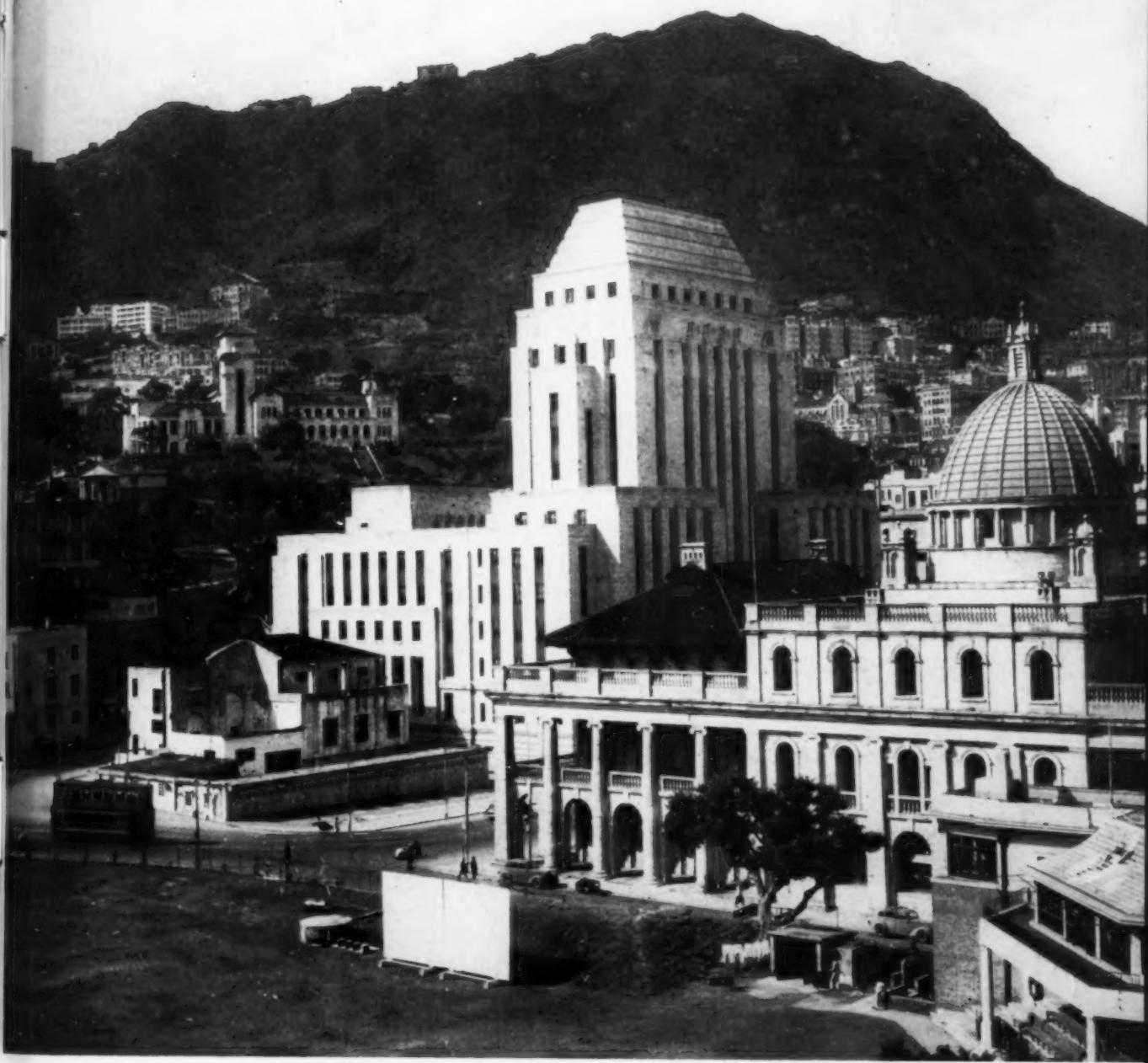
The markets are always busy and overcrowded. The roads are lined with stalls selling dried fish, cooked foods, beans and a variety of soft drinks. Gaudy street signs add to the gaiety of the scene.

Asian as it was of the Western *Zeitgeist*. Dr. Sun Yat-sen himself said it was in Hong Kong that he was inspired to revolutionize China.

And now Hong Kong's ruminations are taking a new turn — less insular and in some respects more ambitious. Great things are stirring in the world of education, with the expansion in many directions of the facilities and the mission of the University of Hong

Kong, on the basic concept that it is the only crucible in which the best of British and Chinese thought can be fused. There is even the salutary thought that Hong Kong is now the only bridgehead over which the great freedoms can be carried to China.

When Mao Tse-tung, in a tone of obvious challenge which implied the rift below, proclaimed in 1949 that no middle way existed, he felt it necessary to employ a



Looking towards the head office of the Hong Kong and Shanghai Banking Corporation with the Supreme Court Building to the left. View taken from Police Headquarters.

mild but ungainly phrase to describe the pro-Soviet policy he asked the party to accept. He called it "leaning to one side". It seemed almost innocuous then, but in the event it has led to a full-blooded Sovietization and to a new euphemism ("the new Internationalism") for an imposed form of Soviet-worship which is very distasteful to all but the most fanatical members of the party.

Yet the Chinese Revolution always had the same maxim as the Meiji Reforms in Japan — the search for knowledge wherever it might be found. It implied, too, a similar freedom and catholicity of selection. Sooner or later China will "stand up" truly and independently, though precisely how it will come about few would be rash enough to predict. Meanwhile Hong Kong's strength, its separateness of identity, its distinctive

role, lie in the very fact of its devotion to the free economic systems and free way of life the mainland has for the present discarded. Hong Kong would revert to its wartime misery and desolation if it were over-run and would have no value to its own people or to the Communists.

The foreigner is vanishing from the widely scattered key points to which he had penetrated all over the country and even from the great Treaty Ports, like Shanghai, that he himself created. The new Russians have come and gone before — they will be sent away again. But seclusion such as the Tokugawa Shogunate enforced three centuries ago is the last thing the Chinese Communists seek. They share with the rest the militant and evangelical urge. Nor is seclusion even possible in the atomic and jet age.

Hong Kong actually began as a place of refuge for the merchants forced to flee from Canton. The United Kingdom Government was so little interested in turning it into a colony that it did not appoint a governor till later and even then the Superintendent of Trade had this function superimposed. Palmerston's eyes were fixed on the Chusan Archipelago. He wrote with withering contempt and anger of the barren island — now a place of ravishing beauty by night and of impressive size and importance by day.

Hong Kong resembles the old free cities of commerce rather than the typical colony of the Western expansion, in which an external power imposed its will, laws and way of life upon an indigenous community. From the first the population of Hong Kong, save for the original handful of fishermen, was an immigrant one in an asylum city. And when the Communists began their conquest of all China the exodus from the mainland doubled the Colony's population almost overnight. There are more refugees per square mile here than in any other city or centre throughout the world.

There has always been, too, something of that spirit of independence which led the refugee inhabitants of the lagoon com-

munities in Venice to tell the Paduans that they were "born independent" and that the islands of the lagoon were the property of those who had rendered them habitable.

Now the older Chinese settlers have taken colour from this environment. The Colony has a hierarchy, from the governor downwards, typical of the older colonial pattern. But it represents a very harmonious marriage of British enterprise and efficiency in government and commerce with enlightened Chinese public opinion and advice. Most of the Chinese leaders in Hong Kong and in the old Straits Settlements are British subjects by birth. They are proud of it, and their loyalty is seldom doubted.

Long residence in a totally different environment develops not so much an estrangement from the parent race as a process of particularism. It resembles the agelong provincial feeling of the Chinese, which is one of the strongest of bonds. Both in Hong Kong and in the Straits the old Chinese settlers have far more in common with each other than with the newcomers or the mainlanders. And these settlers in the course of a few generations have by enterprise and effort helped to build the prosperity they share.

The overseas Chinese do, indeed, form a scattered but distinct group, which has been recognized administratively by the Governments of China ever since the beginning of the Republic they did so much to create. Both the Peking and the Nationalist Governments have their Overseas Chinese Affairs Departments.

Another feature which has always distinguished Hong Kong from the ordinary run of colony is its predominant role as an entrepôt.

It has been from the very beginning a free port, open to all comers irrespective of race, and from that time till today it has offered unrivalled services of all sorts — a free port, regulations not more irksome than they are anywhere else, first-class storage, insurance, and financial facilities and all the essential equipment to go with a first class harbour. It has always been extremely loyal to the



St. Mary's Hospital, the largest medical institution in the colony.

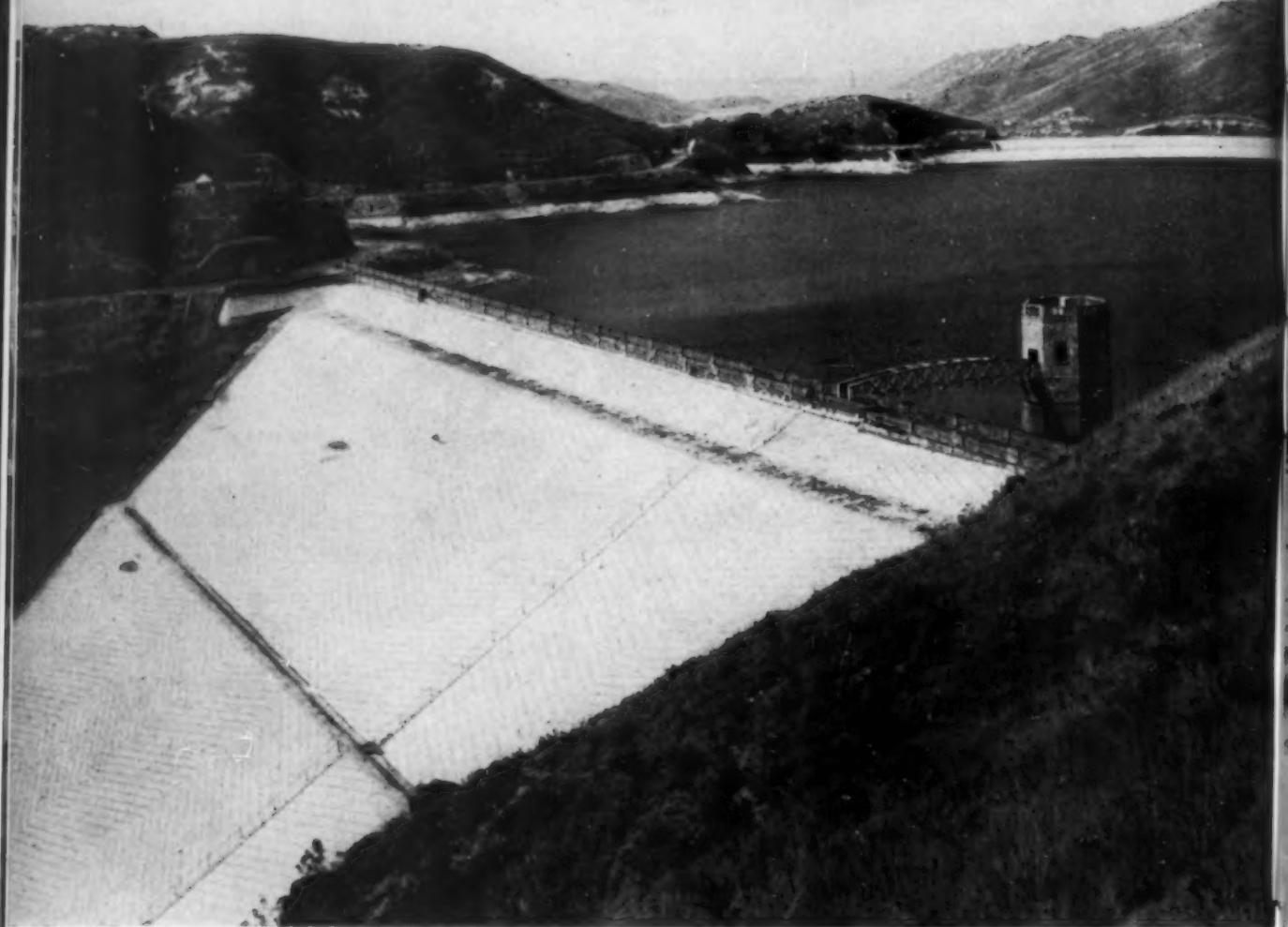
Throne and the Flag; it has at the same time practised in every way the underlying principles of international co-operation and inter-dependence which the modern United Nations organization is trying to serve.

It is in that direction that its future lies, whether under the United Nations or the British flag. It may well become not only the greatest trade mart and permanent emporium to be found in eastern Asia, but also a great international cultural centre.

As the changes deepen on the vast mainland of Asia and the services formerly performed or directed by foreign pioneers and

entrepreneurs are taken over by the indigenous peoples, points of contact, consultation and co-operation in all fields of finance, culture and commerce must be established.

Here it is that centres like Dairen, Hong Kong and Singapore can perform roles similar to but yet more modern than that of the old free cities which often proved such valuable and indeed indispensable bridges between order and anarchy and even between eras in the past. This free city concept is a phenomenon of natural growth. It is closely associated with the maritime trade, because the seas were often free when the



Water supplies in Hong Kong have to be carefully conserved. This reservoir is on the mainland near the Kowloon-Tai Po road.

vast hinterland was the prey to anarchy and war.

Those who take a look at the ancient Portuguese Colony of Macao, only 40 miles from Hong Kong, muse over the way in which it has survived the storms of four centuries. Macao had a century of the Ming, survived the Manchus, the early Republic and the Kuomintang period of tutelage when nationalism often ran riot. It has so far survived the irresistible tide of the Communist "Liberation" Army — and even a serious outbreak only a few months ago between the African troops guarding the narrow land border and the Communist guards on the other side. There was a crisis, but nobody held his breath about it, and in a few weeks it had all been fixed — with the Chinese leaders in Macao as the main instrument.

It has been said that it was because of its smallness and its weakness that Macao has survived all these tremendous tides of time and change: that it was too small to be a wound to anybody's pride, and too helpless to inspire charges of hostility.

These are negative explanations of survival. It is wholly possible that Hong Kong may have more positive and even more plausible reasons for a similar immunity from all quarters. Even the Japanese learnt the hard way that Hong Kong was of value when fulfilling its historic and beneficent functions; and a bitter and costly encumbrance when it was merely the garrison of a conqueror. In few places did the Japanese lose so much face as in Hong Kong, for with them came an end to the steady progress and prosperity of the Colony. Half the population had to be sent away because



One of the new double track roads in Kowloon. This bit of the mainland was leased from the Chinese Government in 1898 for ninety-nine years.

Shell

they could not be fed or otherwise supported.

And this reference to food supplies is a reminder of the fascinating part played by Chinese comestibles in Hong Kong's export trade with Canada. The industrial raw materials bulk large in the values of the trade, but in volume the ancient delicacies and dishes that are the result of centuries of the culinary art play a large part. Some of them are for the many thousands of citizens of Chinese race, and the rest for clients who have taken a liking to "Chinese chow". The trade is done between Chinese firms and there is a human as well as a trade bond involved. Indeed a glance down a list in the office of the Canadian Trade Commissioner is an appetizing experience, for the comestible mysteries include such things as dried lily flower, bean stick, dried oyster, edible beans, canned yellow croaker (fish),

preserved dace, sauces, dates, tea, and the like. These things make up about a quarter of the exports to Canada from Hong Kong. Bowls and chopsticks across the Pacific!

Canada's exports to Hong Kong in 1952 totalled some HK \$57.6 million*, mostly wheat flour, sawn pinewood, pharmaceuticals, and fountain pens. Hong Kong's exports to Canada in 1952 amounted to HK \$22.3 million. They included among their principal items tung oil and feathers.

Since the war, and even before the Communists finally took over the whole of China, Hong Kong's trade was accommodating itself to swiftly changing circumstances. China still has a large proportion of the Colony's trade, but what has been lost has been compensated for by a progressively rising trade with Malaya, Indonesia,

*Hong Kong dollars (worth about 16 cents Canadian).

Thailand, India and Pakistan. Of the total imports into Hong Kong in 1952 of nearly HK \$3,780 million, about one-third came from Commonwealth countries, 830.5 million from China, 482 million from Japan, 221 million from U.S.A., 204 million from Thailand and 27.8 million from Indonesia.

The total exports in 1952 were valued at nearly HK \$2,900 million. The most unusual and startling figure in this branch of the year's trade was the unprecedented volume of exports to Indonesia (HK \$528 million), which actually exceeded exports to China (HK \$520 million), but much of it was entrepôt trade. In all cases the figures for China exclude Formosa (Taiwan), which is now listed separately. The trade with Formosa in 1952 exceeded HK \$250 million, of which the rising export trade to the island accounted for over HK \$207 million.

It is quite clear, therefore that Hong Kong is much more than a mere port for China but rather a truly international entrepôt which has been adding one client after another to its list until even South America has now been brought into the fold.

In spite of the fact that China has to get the strategic materials she requires from the Soviet Union and the Soviet satellites, with whom she now claims to do two-thirds of her total trade, a large volume of Chinese produce still goes to all the markets of the world through Hong Kong. In December 1952 alone, for example, Chinese exports handled by Hong Kong totalled over \$100 million — more than double the total exports to Hong Kong from the U.K. and from Japan. Not all of these were for re-export. Quite a large proportion consists of food supplies for local consumption, such as pigs, poultry, vegetables and eggs in shell. In December the seasonal exports included a large variety of vegetable oils such as tung oil, peanut, rapeseed and soyabean oils, sesamum and other seeds, as well as bristles, for all of which there is a keen demand in Western markets. Bristles imported up to the end of November last (HK \$23.4 million) went mostly to the U.S.A., with

small shipments also to Canada and Japan.

One of the great new factors in maintaining a balanced prosperity in Hong Kong has been the development of light industry on a large scale. It is still a poor second compared with the indispensable entrepôt trade, but it is something that hardly existed before the war, and is due very largely to the influx of refugees from Shanghai and other centres of wealthy and enterprising industrialists, who have now taken over most of the markets that used to be served by the cotton and other industries of Shanghai. At the end of 1952 over 1,500 factories of various sorts were registered with the government. Cotton spinning, weaving and knitting are the major industries. In December 33 new industries were added.

Exports of manufactured goods under certificates of origin in 1952 were about HK \$220 million. This figure is all the more remarkable in view of the difficulties the trade with the United States faced. It was brought almost to a standstill in many items owing to suspicion that their basic materials came in whole or in part from the mainland. A new 'comprehensive certificate' system has now been introduced on American initiative which will much improve the position.

The exports of local manufactures went to almost all countries in the free world. But the principal markets for textiles and other products were in South-east Asia. A trade exhibition of Hong Kong manufactures in Singapore and Jakarta last year aroused tremendous interest there, and the range and quality of the goods on show aroused the pride of the local Chinese in the progress of their enterprising compatriots in Hong Kong. It strengthened Hong Kong's position in the Malayan and Indonesian markets, in which Chinese middlemen have long dominated the trade. This new bond between manufacturer and consumer is another example of the solidarity that continues to grow between the overseas Chinese in the South China Sea, especially now that their



An aerial view of Cheung Chau Island, commonly called Dumb-bell Island because of its peculiar shape. It is about six miles west of Hong Kong. The harbour is thronged with cargo junks and fishing boats, many of which are more than boats, they are also the homes where families spend their lives.

Shell



Modern buildings on the main road of North Point. Kowloon is seen across Victoria Harbour.

Shell

own economic activities would be threatened by any extension of Communist economic structures.

Total exports of local manufactures were far greater than the amount sent out under certificates. Indeed the combined export of the cotton industries for the first ten months of 1952 exceeded HK \$260 million. There are more than 100,000 spindles operating in the spinning industry.

One of the most striking indications of robust confidence in Hong Kong's future is the amount of new building that has been going on without cessation ever since the end of the war. In this respect the landscape is continually changing, and there is hardly an important street without some large new building going up.

Government alone had some sixty-odd

major projects in hand or being completed at the end of 1952. Some of them were very big items indeed, like the huge reclamations at Causeway Bay and the new civic buildings in the centre of the city. Another big project is a great stadium to seat 35,000 to begin with and to allow for extension later to take care of 65,000. New hospitals, schools, residential quarters and a host of other buildings are also going up.

Private enterprise in no wise lags behind government. In the period between January and the end of November 1952, 1,244 buildings were erected on private account at a cost of HK \$125 million. Total electric power production for all purposes for the eleven months to the end of November was nearly 360 million kilowatt hours.

Hong Kong still looks at the world through



A general view of Canton Road, Kowloon, the mainland section of the colony of Hong Kong.
Shell

the eyes of the economist as a sort of international service station to all the trade of the world that goes through its harbour, its warehouses, its banks and insurance offices. But perhaps because the vast changes on the mainland have brought changes too in some of the leading personnel in the Colony, the feeling is growing that there is a mission that embraces this and much more now that it stands as the lone fortress and *point d'appui* of the West.

Hong Kong prides itself that in this meeting-place of East and West the ultimate synthesis is being shaped and fashioned — freely, unostentatiously, but effectively. It can be seen at work in the spheres of dress, the arts, on the field of sport and in the hundred and one ways in which people of Chinese race respond to the stimulus of

the Western way of life. East and West here have learnt to live together harmoniously and the accomplishment and perhaps the future role are not less but more significant because Western man himself is going for good, and in the symbolism of East and West the *dramatis personae* hereafter will be the Chinese themselves.

We have learned to live together just as the wider Commonwealth is learning to live together, and to anyone with vision these things inspire faith in the full range of their promise and significance. The forces of history often work as powerfully in small centres as in great and in its most secret moments of deep reflection Hong Kong likes to think of itself as the forerunner and forecast of the future harmonization of China and the West.



The terrain of the old I.B. & O.

Ontario Dept. Travel & Publicity

The Sportsman's Special

by BILL COLLINS

Photographs (except first) by author

The Old I.B. & O.", as the natives of Haliburton Country, Ontario, still insist upon calling the Canadian National Railways line between Bancroft and Howland, does not get many passengers: but those it does get are treated well. If it were commonly known just how obliging the erstwhile Irondale, Bancroft and Ottawa Railway can be, the "mixed" train which makes the round trip three times a week might be stalled by a plethora of fishermen.

For the old railway runs through a land of lakes, hills and valleys, and its construction involved few alterations in Nature's original plan. The story is that when the railway was constructed the government was paying a generous subsidy, based on mileage, rather than on the actual distance between

the two ends of the line—and no bonuses for cuts or fills. Consequently the I.B. & O. went around big boulders and tall timbers; and only those hills which could not possibly be surmounted by any stretch of a steam boiler were cut through. The I.B. & O., in most cases, went around, or over the top.

The country through which this slow-motion roller coaster meanders is the kind that gives avaricious boards of trade perennial advertising convulsions; country that even your best friends won't tell you about, if they are fanatical fishermen.

Every Tuesday, Thursday and Saturday the train is made up at Bancroft, Ontario, roughly 30 miles south of the southerly boundary of Algonquin Provincial Park. It is popularly believed that upon one occasion,



Number 323 climbs out of the haze in Mumford Valley.

about the turn of the century, Number 323 got away on time. The exact date has been forgotten, but reference to the event, in Bancroft, is followed by that solemn hush observed in most of the other far-flung outposts of Empire only when mention is made of Victory in Europe Day.

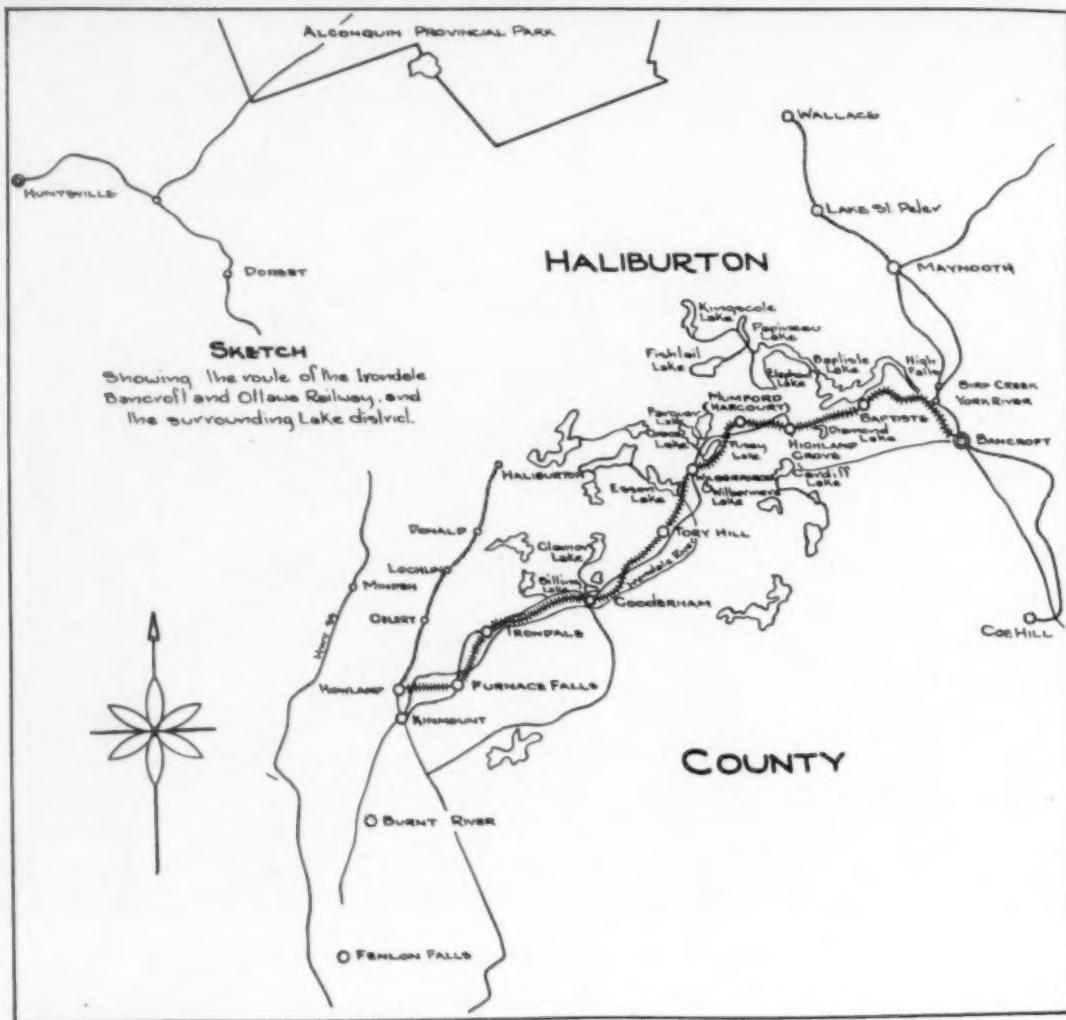
Having started, the engine never rests for any appreciable length of time until, five or six hours and several thousand cubic feet of expended steam later, it arrives at Howland—53 miles southwest of the starting point, and 85 miles northeast of Toronto. Snorting up hills, and cautiously making its way down, the train snakes around tortuous curves and creeps across antiquated trestles, sometimes barely moving, and at no time exceeding the rate of 20 statute miles per hour.

The passenger who gets on board at Bancroft, and takes the full course, will pass through some of the finest fishing grounds in Ontario—a somewhat overlooked section of the famed Highlands of Haliburton County.

Some of the lakes skirted by the I.B. & O. are practically inaccessible by road. Thanks to the old railroad, which was originally constructed as a means of getting ore out of Irondale, an angler can spend a day in splendid solitude on the appropriately named Trout Lake. The train usually passes there between 9 and 10 o'clock in the morning, and it's an open secret along the line that if there is a fisherman aboard, Number 323 can be induced to make an unscheduled stop less than 30 feet from the shore.

Sometime after 6 p.m.—the same day—unwonted sounds from the southwest will acquaint the fisherman with the fact that his preview of paradise has ended. Bancroft bound, the last train that will pass that way for two days is approaching. Unhurriedly, he can gather up his gear, string his catch, and make his way to the tracks before the train comes into sight.

If he is going "clean through to Howland", the traveller learns of another of those



F. W. Collins



extra services which are thrown in with a ticket on the I.B. & O. Upon being assured that he has a passenger willing to go the limit, the conductor arranges to have a hot meal waiting for him in the home of the station caretaker at Gooderham.

The laboured breathing of the engine, and

the shrill protests of the wheels can be heard in unison as the train, simultaneously topping a rise and rounding a bend, comes into view. Then the quickening chorus of slightly distorted wheels on widely gapped rail-joints drowns out other sounds, as Number 324 slaloms to the level of the lake.

Number 323, in keeping with an old railway custom of making time tables as complicated as possible, is known as Number 324 when going east.

The Trout Lake run is only a teaser. Few sportsmen have taken it without coming back to buy a ticket to the end of the line.

The first stop out of Bancroft is York River, where the station is large enough to accommodate only the first half of the place name. But, having reached "York", the brook fisherman is within walking distance of white water which is equally popular among fish and fishermen. High Falls, on



A box car still serves as Irondale's station.

the York River, is worth going to see, even if you have left your tackle at home.

Number 323 follows the south shore of Baptiste Lake so closely that the passenger could actually dive from the rear platform, in perfect safety. The remote possibility that the conductor would fail to note his absence, and hold up the train at the Baptiste Lake station, would cause no alarm in the breast of anyone who knew that part of the country. A more delightful spot at which to be left behind on a summer day would be hard to find. A natural hot-weather playground, Baptiste Lake has been provided with modern comforts for those who want them. Hundreds of Canadians on holiday spend their summers at Baptiste Lake, in family cottages, rented cabins, and in several comfortable hotels.

Fed by the York River, the lake, in its own way, is as good a fishing spot as High Falls. It has had pickerel, bass and lake trout since before the grandfather of the oldest inhabitant was big enough to cut himself a willow pole. Recently, thanks to government hatcheries, 'lunge have been added to the menu.

The Baptiste Lakers are by no means all fishermen. Some prefer swimming or water skiing; and there are quiet coves for those who want to simply cool off and "take it easy". In the evening, canoes and the magic of a silvery moon are available for lovelorn youths; iced drinks, card tables and flood-lit shuffle-board decks have been provided for their more portly parents.

Baptiste Lake has four islands, and on the heavily wooded main shore can be found

THE SPORTSMAN'S SPECIAL

formations to suit every taste. Although only 21 miles round the outside, the prize lake of that land of many lakes offers the summer resort seeker sandy beaches, pebbly shores, or rugged cliffs of solid rock.

It is unlikely that in 1877, when L. B. Howland and Charles Pusey built five miles of narrow-gauge railway from Howland to the mine at Irondale, they dreamed of their line some day serving a thriving summer resort. Later, however, when the line had been extended eight miles east to Gooderham, Charles Pusey did start to dream.

He envisioned his railroad running to the Capital. The lumber industry was booming, and he applied for, and in due time received, a charter which gave him a right-of-way into Ottawa.

Although the railway eventually reached Bancroft, the "Ottawa" part of the title was destined to remain a wishful but meaningless appendage; and when the line was taken over by the Central Ontario Railway, Pusey's charter became a historic relic and the name of his railway was officially pronounced obsolete.

The steel ended at York River, three miles short of Bancroft, at the time of the builder's death, but the fact that it foundered 125 miles short of its objective cannot be attributed to lack of enthusiasm on his part. Originally a prospector, he became a railroader heart and soul. Oldsters of the district say that Pusey felt slighted when he failed to receive a bid to a railroad conference in Chicago. Advised by the steam-car magnates that a dozen miles of track was not commonly considered a railroad, Pusey, who had just refitted his line with standard-gauge track, replied, "It may not be as long as yours, but it's just as wide!"

The waters of Diamond Lake, another of Nature's fish hatcheries, lap at the I.B. & O. road-bed just east of Highland Grove. The next stop has two names: Mumford and Harcourt.

The five-mile height of land between Mumford and Wilberforce is one of the few sections of that length in which the I.B. & O. does not pass within sight of water. The



Lumber is floated down the Irondale River to the railway.

down-grade into Wilberforce levels off within casting distance of Dark Lake, and another short, dry run takes the train into Gooderham. There it meets the Irondale River, which it follows to the end of the line.

Among the crew members who dine with the passengers at Gooderham is the only travelling train agent on the Canadian National Railways. Operating without benefit of station masters, the I.B. & O. has aboard the train an agent who does all the brain work involved in the shipment of milk cans, potatoes, mail-order parcels, pig-starter and lumber which make up the cargo.

The spacious express car in which the train agent rides in solitary grandeur would have delighted Charles Pusey, who never had anything better than a modified flat-car upon which to make his inspection trips along the line. Eighty-eight-year-old Thomas Peever of Bancroft, who remembers the "Executive Car", describes it as a lorry with a steam boiler and "stationary" engine mounted at its middle. Chain-driven, this monster of an earlier day was capable of

propelling one car and a limited number of passengers, in addition to its own weight. When Pusey or some minor executive was travelling, the railway's one and only self-propelled conveyance was rigged with a tarp which, according to eye-witness reports, gave it the appearance of a glorified Indian howdah.

President Pusey rode "side-saddle", and maintained a certain degree of dignity, in



The York River
has stretches to
suit all tastes.



spite of the flapping tarpaulin which intermittently cut off his view of the surrounding terrain. The engineer, when he was not too busy investigating leaks in the boiler, kept a sharp look-out for low-hanging branches.

For the fisherman, the scenery west of Gooderham is a constant invitation to desert the swaying coach and try his luck with his favourite fly, in the Irondale River. This waterway offers deep holes, mild rapids,

white water and eddies in a variety which would meet the varied demands of all the men who ever hooked trout.

On the other hand, the traveller at this point, is approaching the most historic section of the I.B. & O. Although the train is now spoken of as running "from Bancroft to Howland, and back", it was actually near the west end that the line had its beginning. The first rail was laid at a point, now known as Howland, on the old Midland Railway, which had been taken over by the Grand Trunk. Five miles to the east, construction was temporarily halted at Furnace Falls, where iron had been found. A few years later, when a second shaft was sunk, at Devil's Creek, the steel forged ahead another four miles to that point. The name of that mine site was changed to Irondale, and subsequently included in the railroad's charter title.

The charter won by Pusey was the little railway's greatest asset. The envious eyes of Mackenzie and Mann, Canada's railroad lords, were eventually cast in the direction



of the Haliburton Highlands, and the weight of Mr. Pusey's mail from Ottawa increased ominously. At one time during the construction of the line he was told to have an engine standing at Gooderham by a specified date, if he wished to keep his charter. He had an engine, and a full crew of willing men, but all the track he owned at the moment had been laid and spiked; and there still remained a gap of several trackless miles between the last fish-plate and Gooderham.

The spirit which had enabled the former prospector to become sole owner of a railroad was not daunted. Taking his one and only locomotive to the unfinished end of the line, he had his men tear up several lengths of track in the rear of the engine. These were manhandled forward and laid long enough for the engine to advance a little more than its own length, when it was halted, and the operation was repeated. On the named day, an engine was standing on steel in the clearing designated "Gooderham". Behind the marooned locomotive, cut through the bush, lay a swath quite innocent of rails.

Today the traveller can still see evidence of the haste with which the line was surveyed for that frantic advance. To his dying day, however, President Pusey maintained that the incredibly acute Pine Stump Curve was plotted in order to by-pass an immovable boulder, rather than the massive stump which gave the curve its name.

The line now boasts of a 1200-type locomotive which can haul a 500-ton load on the eastward run. Going west the load must be cut to 200 tons if the train is to clear the Baptiste Lake grade in one drag. Rising more than three and a half feet in every 100 feet of forward progress, the train on that part of the line ascends a 3.64 grade—steeper than any railway grade in the Canadian Rockies.

The wealth of the Haliburton hills which the railway surmounts or circumvents is not confined to scenery and fish. Years ago those hills contributed to the world's supplies of iron and graphite. More recently, radioactive metals have been discovered. Gordon Pickens, of Gooderham, who has probably

been shaken up by the I.B. & O. more often than any other living man, claims knowledge of potential atom bomb hatcheries in Cardiff Township, where surface ore assays at \$300 per ton. In the same township, he maintains, thousands of dollars' worth of radioactive dust was washed into a swamp when a recent experiment with an old ball mill backfired.

That was since the Geiger counter was invented. Mr. Pickens has been looking for the foot of the rainbow since the time at which the I.B. & O. was built, and he knows a mother lode when he sees one. Having depended for a living on a good pair of legs, a frying pan and a prospector's pick for more than 50 years, he knows his Haliburton Highlands like the calloused palm of his hand. When he says "there's uranium in them thar hills", he is not just passing on a good thing that he heard in the general store at Gooderham.

So the old railway may not be marked for death, as appearances might indicate. The mines at Furnace Falls, Irondale and Mumford are closed; and it is admitted that the lumbering in that part of the country is not what it used to be. The people served by the I.B. & O. were never under the impression that they had the best farms in the world—and nothing short of a sharp increase in the demand for rock-garden produce is likely to change their outlook, in that respect. But, if Science continues to march on, why should the Haliburton Highlands stand still? The I.B. & O., which brought into the district many of the settlers, may also bring in a new era of prosperity.

Who is prepared to say that Charles Pusey's brain child, built for the purpose of taking ore out of Irondale, will not some day be running uranium from Cardiff Township to Chalk River, of heavy-water fame? The distance to that point on the Ottawa River, from Bancroft, is a mere 70 miles. A great many trees might be encountered in the intervening country but the I.B. & O. solved that problem years ago. Another tree would simply mean another curve in the line.



The wheel as it appeared in September, 1952. This is the "full bucket" or downward motion side. The men on the spillway and spoke of the wheel indicate its size. Geological Survey

The Big Wheel on Perry Creek, British Columbia

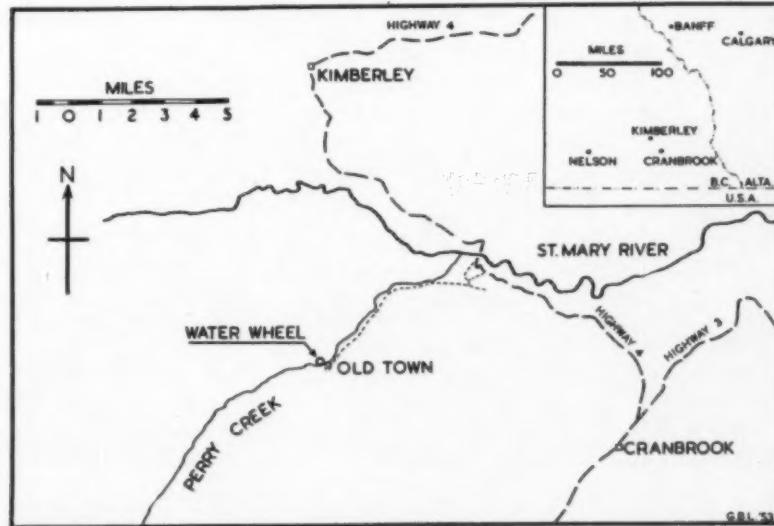
by MABEL E. JORDON

Photographs by the author unless otherwise credited

This big water wheel, originally built for mining operations, has become a popular background for snapshots by scores of fishermen, picnickers, tourists, and prospectors. Its very size causes the unenlightened to stand and stare, reminding them of some kind of fer-

ris wheel, and arousing unbounded curiosity.

The wheel stands on the bank of Perry Creek in the Purcell Mountains, 15 miles by road from Cranbrook in the East Kootenay district of British Columbia and a few hundred feet from the site of historic Old



Town. Perry Creek contains placer gold. It is named after Frank Perry, one of the prospectors who discovered its riches in 1867 and precipitated the gold rush that founded Old Town. Just as the lure of gold built Old Town, so the lure of gold built this wheel more than two generations later. It was erected as part of a scheme to mine gold that the old-timers had been unable to recover.

The visitor crosses the site of Old Town on his way to the wheel, but much of it is occupied by a sawmill and an ever-growing sawdust pile, and little remains to tell its story. The village had a brief revival in the late 1890s and early 1900s when the Crowsnest branch of the C.P.R. opened the district for settlement and provided easier access to mining properties. A second, more brief, revival occurred in 1923 when a Hollywood movie company, which included Anna Q. Nilson, looking for an appropriate setting for a western movie called "Hearts Aflame" found its dream background already set up. They used it for two weeks for background and special shots. The Old Town Hotel, a familiar landmark and refuge

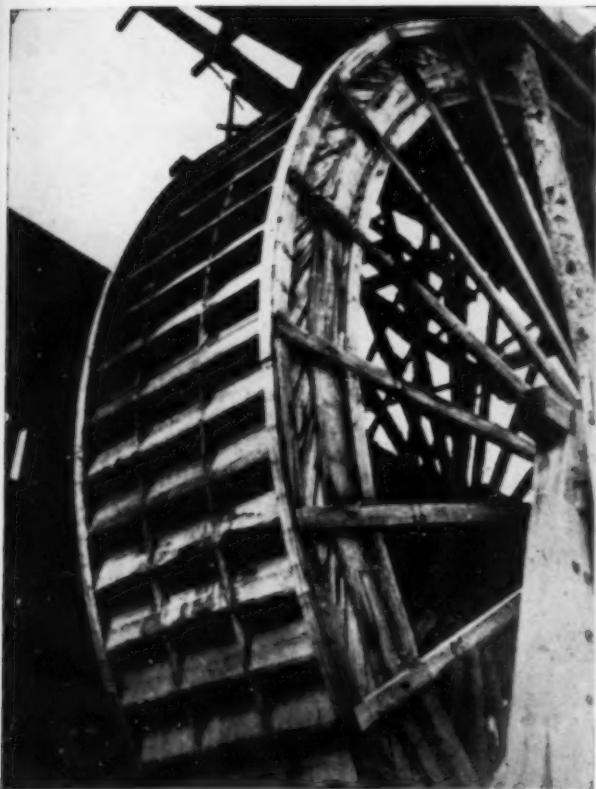
for many a prospector, was burnt to the ground in 1945. It was built from hand-hewn squared logs, mortared, and had fourteen rooms and the inevitable bar. The only remaining original building, believed to have been a store, must soon collapse, because it is weakened by removal of much of its front to accommodate, ironically enough, trucks and bulldozers.

The water wheel stands just upstream and across the creek from Old Town. It was primarily designed and built by William Nystrom in 1933-34 to provide cheap power for pumping seepage water out of an underground placer mine about 100 feet deep. Eleven thousand board feet of lumber cut from nearby hills went into its construction. Its diameter is 32 feet, with face (width) of 7 feet. There are 72 built-in buckets, each with a capacity of about 70 gallons of water. Its shaft (axle) is $6\frac{5}{6}$ inches thick and 14 feet long. This may well be the largest overshot water wheel in North America.

The wheel was fed by a flume into which Perry Creek was diverted at a point 1,840 feet upstream. It used the entire normal

Water from Perry Creek was fed to the top of the wheel through a branch of the flume on the hill-side. The quantity actually entering the buckets was regulated by a weir which discharged the excess down the steep spillway.





Left:—A section of the water wheel on the 'empty bucket' or upward motion side, showing the shape of the buckets.

Below:—Part of the flume which fed the big wheel, 4 feet wide and 3 feet deep. When in use there was a cat-walk along the top the full length of the flume.



flow of the creek, except in high water when by-passes in the flume regulated the amount supplied. Its speed was governed by the grade of the flume (1½ per cent) and the flow of water. The most efficient speed was 6.9 revolutions per minute, attained by using the normal flow of the creek, about 11,000 gallons per minute. At its highest efficiency it developed 112 theoretical horsepower and delivered 68 h.p. through a series of gears and belts to two modern pumps. (For the mechanically minded reader, the transmission was as follows: the primary gear was 6 feet in diameter, 12-inch face driving a pinion 12 inches in diameter to a 3-ft. 6-inch gear; thence to a 10-inch pinion driving a 36-inch clutch pulley. This pulley carried a 15-inch belt drive to another pulley, mounted on a common shaft with two clutch pulleys, one for each pump.)

The pumps drained a placer mine consisting of a shaft from the bottom of which tunnels led beneath the creek-bed in gold-bearing but water-filled gravels. One pump ran at 1,600 revolutions per minute and delivered 1,200 U.S. gallons per minute, the other at 1,750 r.p.m. and delivered 600 U.S.

gallons per minute, each against 110 foot head.

The trial run took place in 1934. The wheel did not immediately operate satisfactorily and many obstacles had to be overcome before it ran smoothly. The chief troubles were warping out of true, uncontrolled speed, vibrations and other breakdowns, some of which were caused by bulging of the inside perimeter by pressure of the water in the buckets. This inner perimeter consequently was strengthened by two laminated wooden rings, and others were built on the outer rim on each side.

In 1935 the wheel completed its operating season at the end of October, at which time severe icing conditions necessitated a shutdown for the winter. In the spring of 1936 it dewatered the mine in preparation for another season's operations, but these ceased upon the death of one of the company's principals. Thus, through no fault of its own, the wheel's activity was stilled. It now stands proudly on the bank, a guardian of the creek and a companion for the lone prospector who lives in the log cabin behind it.



This cairn of native rock, in Cobalt, commemorates Dr. W. G. Miller. The inscription reads:—

WILLET GREEN MILLER
FIRST PROVINCIAL GEOLOGIST OF ONTARIO
1902-1925
TO COBALT HE GAVE ITS NAME
AND A PLACE AMONG THE GREAT MINING
Camps of the world.
HE READ THE SECRET OF THE ROCKS,
AND OPENED THE PORTAL FOR THE OUTPOURING
OF THEIR WONDERFUL RICHES.
HIS MONUMENT IS
NEW ONTARIO

Cobalt Blooms Again

by L. CARSON BROWN

SPRAWLED OVER bare rock, clinging by a prayer to outcroppings, the town of Cobalt, just a hundred miles north of North Bay, could not by the wildest stretch of the imagination be classed as a contender for the title "The Town Beautiful". For Cobalt — the "Topsy" of Canadian municipalities — grew without planning or direction and acquired its basic form, if form it is, in the first decade of its existence. That decade and the years that followed have been marked by some of the highest adventure, some of the most fabulous stories of fortune-taking in the whole history of mining.

Cobalt made elaborate preparations to mark its fiftieth anniversary in July 1953, with the full expectation that, as the town celebrated, the Cobalt Song which has been heard in every mining camp of the twentieth century would be sung again with the old gusto by many of the hardy men whose efforts in the early days gave the song real meaning.

In its half century of life Cobalt has experienced in full measure the joys of a full purse, and the unhappiness of a shattered

fortune. The camp has been the grandmother of Canadian mining, the jewel and the bawd, the reward and the heartbreak of prospector and investor. Now Cobalt enters respectable middle age, the follies and extravagances of youth left behind, without great hope of regaining all her former position of wealth and glory but with assurance that, with reasonable prudence in the use of the fortune left to her, she is secure for the rest of her life, and that none of her children or grandchildren need know the poverty she experienced in the "Hungry Thirties" when the first flush of her fantastic fortune had departed and before she had begun to rebuild on a less ecstatic level.

For Cobalt was extravagant, with an extravagance amounting to prodigality in the days when her fortune seemed limitless and silver overflowed from every pocket in seemingly endless supply.

The silver made millionaires overnight. It made Cobalt a household word across Canada and throughout the world. It was the real mainspring from which grew Ontario's whole mining industry — the inspiration for

COBALT BLOOMS AGAIN

the search for wealth and the development of Gowganda, Kirkland Lake, Larder Lake, Porcupine and the other great mineral producing areas which changed the face of Canada's economy.

Cobalt's silver did all this, but with a prodigality perhaps not hard to understand in the face of such abundance, only the richest ores were refined and the tailings, millions of tons of them, were dumped into Cobalt Lake. Within the last three or four years, however, determined efforts have been made to recover this squandered wealth and the "slimes" are being re-worked methodically with a satisfactory measure of profit.

In the earlier days of course, silver was the goal and the sole objective of all prospecting and mining activity in the camp. The cobalt constituent of the ores was an incidental, more of a nuisance than otherwise.

But war, the new machine age, and the fight against cancer, have all had a part in bringing cobalt to its present place of eminence in the world's industry, and the search for cobalt goes hand in hand with the search for silver wherever the tap of the prospector's pick is heard in the rock-strewn area surrounding the town.

Within the last decade or so science and

industry have found so many new uses for cobalt that volumes have been written on the subject. At one end of the scale, human bodies are being saved from the ravages of cancer through the use of the cobalt bomb which in many hospitals is replacing the old, much more costly and more dangerous, radium therapy. At the other extreme, heat-resistant cobalt produced from ores from the Cobalt camp makes possible the production of faster, more deadly engines of destruction such as jet propelled aircraft. In between these two extremes are a whole host of other uses, some known to the ancient world, some of recent discovery, others as new as today's newspaper. The story of the development of cobalt in the industrial life of the nation and of the world is a continuing story whose final chapter will not be written in the predictable future.

Cobalt is indeed the Jack of all trades of the mineral world. Its earliest use was in the form of an oxide in the enamel, porcelain and ceramic industries, and the history of cobalt compounds as colouring agents goes back to prehistoric times. However, its principal use in twentieth century industry is in the form of stellite, a cobalt-chromium alloy, essential in the manufacture of cutting tools

The approach to Cobalt from the north. Its location on the Ontario Northland Railway and on the trans-Canada Highway brings the camp within easy reach of Toronto and the financial centres of the world. The old Tretheway shafthead can be seen at the extreme right.



because of its extreme hardness. Cobalt has also been found in some respects to be superior to nickel in electro-plating processes. Among its less known uses are its addition in minute quantities to commercial fertilizers and to feed for cattle.

The story of the town of Cobalt, like that of the mineral also appears to be a continuing story. Even in the dark days when its fortunes were at their lowest ebb, supporters of Cobalt refused to acknowledge that the town's history was all behind it. Now the new resurgent Cobalt, again in business, bears out this feeling of optimism. Not only are many of the old properties being dewatered and re-opened but new exploration and development is proceeding on a scale and at a pace comparable with that of the early boom days.

In the past the big thoughts of Cobalters have brought big results. Their thoughts are still big and the results once more are up to scale. They see a bright future growing out of a story-book past and the plans they are making now are not based on any short term expectation of prosperity.

Recent figures show the cobalt and silver producing mines in the area forging ahead steadily with dips in the graph only where

they could be expected to follow current market and price trends.

In 1951, the last year for which complete figures are available, the ten major producers of silver-cobalt ores in the area reported they had shipped 276,811 pounds of cobalt valued at \$633,986 and 3,195,873 ounces of silver which brought returns of \$3,021,758.

Since 1921 the Temiskaming Testing Laboratories, operated by the Ontario Department of Mines has offered a continuing and essential service to the mines of the Cobalt camp, Gowganda, and other silver-cobalt producing areas of Ontario. The T.T.L., operating as a bulk sampling plant, gives a completely accurate assay of the tested ores, an assay which is recognized and accepted by producer and purchaser alike. Most of the sampled ore is sent to the Deloro Refinery which, having started operation in 1907, ranks as Canada's oldest existing refinery and the only one in which cobalt ore is completely processed. It is one of the very few cobalt refineries in the world. The T.T.L. was built and first operated privately as a customs sampling plant. In 1919 it was sold to the Temiskaming and Northern Ontario Railway. After its purchase by the Mines Department two years later its operation



When the old Coniagas mine closed down several years ago, its shaft was left standing. Now, in the heart of the business section of Cobalt it forms part of a grocery store. Until a few years ago the cool depths of the shaft served admirably as a refrigerator and food storage locker.



Cobalt today is a thriving community whose retail firms maintain a consistent year-round business. This view looks eastward toward the "square", the station and Cobalt Lake.

was continued until 1941 when the plant was completely destroyed by fire. The building housing the Cobalt municipal offices was made available for the re-establishment of the laboratories.

As token of Cobalt's forward-looking spirit, a new smelter, which is expected to be in operation towards the end of this summer, hopes to offer complete smelting and refining services to the mines of the district and the province. The plant of Cobalt Chemicals Limited which will cover more than 300,000 square feet will comprise twelve or more buildings. The new smelter is being erected on the site of the old Cobalt Chemical and Refining Company which was lost in a fire in 1950. Some of the buildings and machinery are being salvaged.

In order to avoid many of the snags which inevitably appear in the early stages of such an operation, a complete pilot plant, a smaller model of the entire smelter, was put in operation in Ottawa and is to be moved to Cobalt this year.

Cobalt's history has been a rugged one, chiseled by virile men in the face of the rock amid which the town is set.

The real significance of the Cobalt story lies not so much in the romance with which it is invested, nor even in the great value of the finds themselves. Its lasting importance is represented on a broader scale by the potent impulse which it gave to the search for and the development of the mineral wealth of all Canada.

Prior to 1903 there had been the gold rush to the Yukon, gold and silver discoveries in British Columbia and the solidly based nickel-copper development in Sudbury. But to Canadians, prospecting and mining were alien skills with few active practitioners. At the turn of the century the Canadian people were concentrating their efforts on opening up the West, building railways and developing manufacturing. They had not much inkling of the vast wealth which lay in the rocks of the Precambrian Shield.

The discovery of Cobalt gave a new di-

rection to Canadian thought. The rich silver veins sticking up out of the rocks like the ribs of a broken umbrella, the chunks of almost solid metal, shaped like stove lids or rough cannon balls, were at first regarded with incredulity and, tardily, with realization of their value.

In a sense Cobalt was a poor man's camp and in its richness it was quite without precedent in Canada. The most confirmed sceptics were convinced as the first shipments of ore were made and the cheques began to roll in. The first carload shipment of ore brought in \$40,000. It had been mined from the surface of the Trethewey property with only a few picks and shovels and a horse whim. According to one enthusiastic commentator the ore peeled off the exposed veins like loose planks from a barn wall.

The birth of Cobalt was truly an accident. Nobody can take credit for its deliberate conception. There were no geological maps and no suspicion of the existence of mineral deposits in this remote, unsurveyed region. Lumbermen who had been there had kept their eyes on the tree tops while their boots scuffed over the exposed veins of silver ore.



The Brady Lake Mine of the Silver Miller group is once again one of the big producers of the Cobalt Camp although at one time it was thought to have been worked out. In 1946, Harry G. Miller, the founder of the company "played a hunch" which has since paid off in dollars and cents. Although his mining engineers were sceptical he persuaded the company's directors to proceed with dewatering the old shaft and making a crosscut to the point where he thought it should intersect the old vein. This picture shows just how accurate his estimates were.



Old Right-of-way Silver Mine shaft house and headframe. Looking south from the bridge, with Cobalt Lake at right and the town of Cobalt across the lake. G. M. Dallyn

COBALT BLOOMS AGAIN

A few miles to the east, the Hudson's Bay Company had a fur trading post, but its agents, too, failed to detect the other, greater form of wealth.

Yet it was largely through the interest in the area stimulated by a former factor of the Hudson's Bay Company that the discoveries were made — still by accident. C. C. Farr,

who after his retirement had secured a land grant which included the present site of Haileybury five miles north of Cobalt, interested himself in opening up the Clay Belt which extended north, east and west from the head of Lake Timiskaming.

As a result of Farr's prompting, the Ontario government sent in experts to assess the agricultural possibilities. Their reports were so favourable that the government decided to open up the territory with a rail line from North Bay. The railway inched northward and at mileage 103 passed directly over rich silver veins.

To J. H. McKinley and Ernest Darragh, two tie contractors working for the railway, goes the credit for the first discovery. The partners, who were not prospectors, had noticed metallic particles in the rock-cuts. A Montreal chemist to whom they sent samples for assay reported that they ran 4,000 ounces of silver to the ton. They recorded the first Cobalt mining claim and the McKinley-Darragh mine was in the making.

Alfred LaRose is a name which will live as long as the Cobalt legend endures. The story is that LaRose, a blacksmith threw his hammer at a fox — missed the fox and hit a mine.



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That was in August, 1903. The famed find of Fred LaRose occurred six weeks later. The story has it that LaRose, a blacksmith employed by the railway was annoyed by a fox and threw a heavy hammer at the animal. He missed the fox but the hammer broke off a chunk of a rocky outcropping to reveal glistening silver. Whether or not the legend is true, the LaRose mine has produced a lot of wealth in the intervening years.

At this time the Ontario Bureau of Mines sent the Provincial Geologist, Dr. Willet G. Miller to the scene. Miller was amazed on his return to find that his enthusiasm was not infectious and the public and the mining world of the day remained apathetic to the fortune in mineral wealth which he described.

However, with W. G. Trethewey's first shipment of ore the following year and the incursion of the Timmins brothers, the McMarts and the O'Briens, the Cobalt camp began to acquire sound financial structure. After just two days on the spot, Trethewey, with Alex Longwell brought in two of the richest mines in the camp, the Trethewey and the Coniagas.

Ontario was not prepared for the advent of Cobalt and, certainly, Cobalt was not prepared for the inrush of honest prospectors,

claim jumpers, camp followers and fortune hunters who swarmed in after the first big finds. The province then had no Securities Act and the Mining Act had some curious provisions, one of which stipulated that mineral must be found "in place" before a claim could be staked.

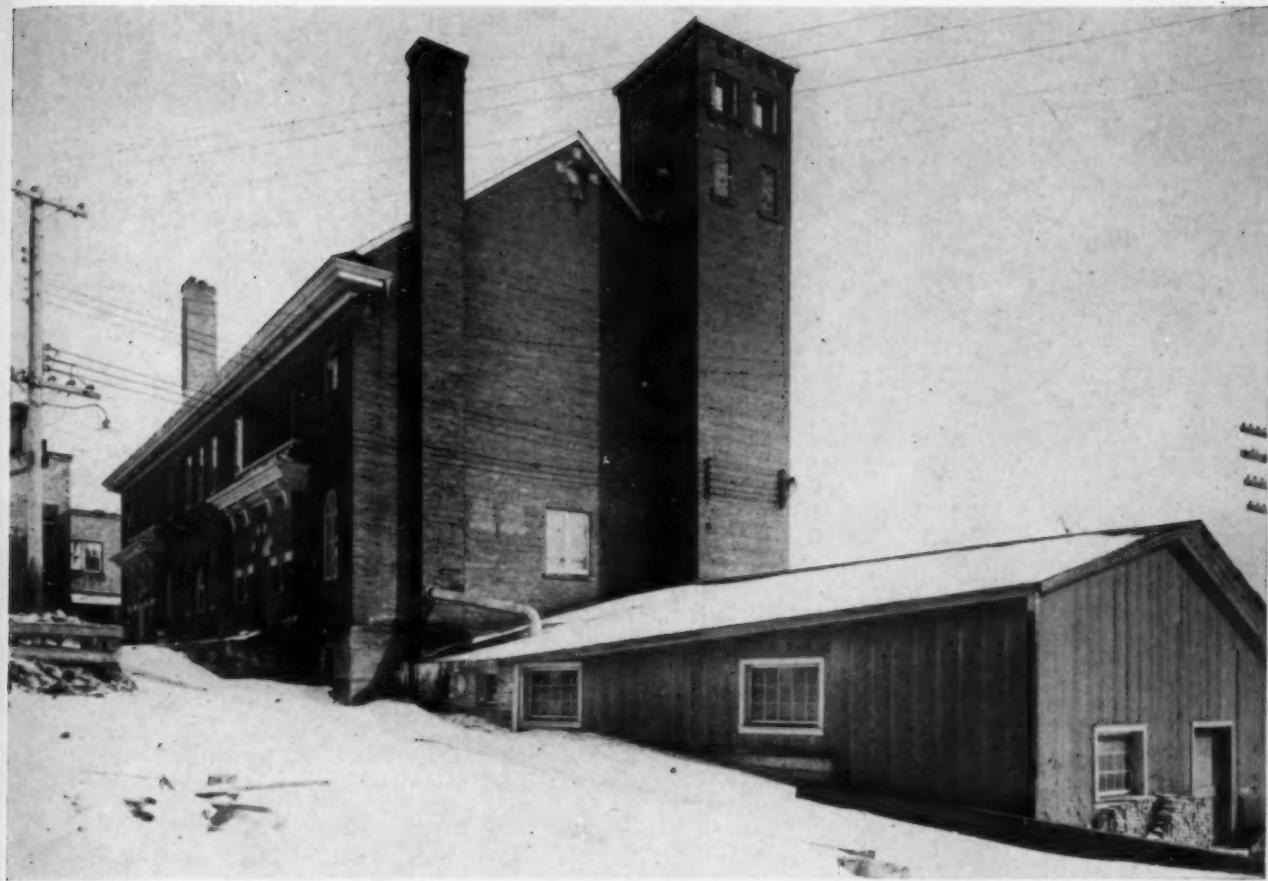
This provision had some very strange repercussions, the most striking of which was the failure of prospectors to stake the lake beds of the area despite the fact that silver veins were known to run into them. The government pre-empted these lake bottoms and sold them at auction, realizing millions of dollars.

In some respects the law was far from clear and lawyers had a Roman holiday in the battles for property transfers. The legal difficulties engendered by the old Mining Act were gradually straightened out so that now Ontario's mining legislation has become a model followed by many of the world's governments.

In spite of the worst efforts of wildcat promoters the infant Cobalt camp grew and thrived and soon sounder financial support was forthcoming from both Canadian and United States sources. The Timmins-McMartin-Dunlap group, originally of Mattawa, bought out LaRose. The O'Briens, rail-

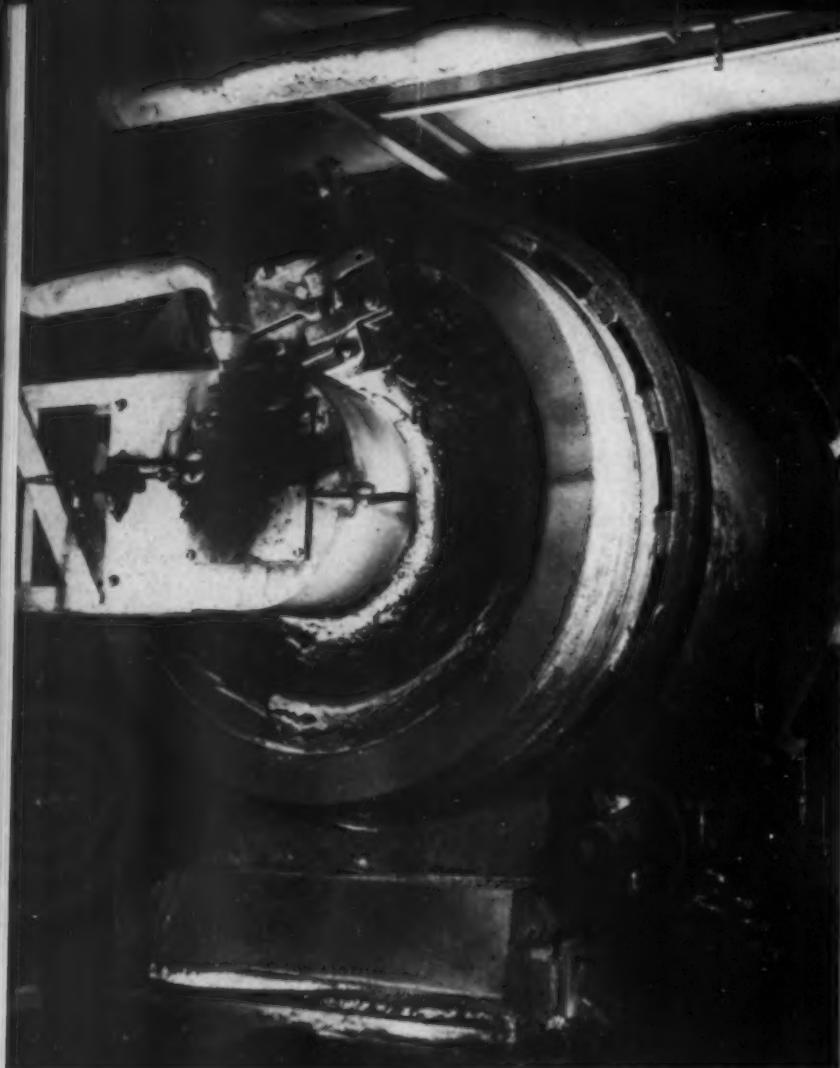


The Provincial Institute of Mining at Haileybury is intended primarily to serve the needs of the mining areas and graduates of this school have little trouble in establishing permanent connections with mining companies. The Institute provides technical courses at a high level in subjects relating to mining without the investment of time and money which would be required for courses leading to university degrees.



The Temiskaming Testing Laboratory, operated by the Ontario Department of Mines at Cobalt, has for many years given the mines of the area a bulk sampling and assay service. Shown below is a corner of the chemical assay department of the Laboratory.





Treatment of Cobalt silver ores in Canada commenced in 1907 at Deloro, Ontario through the efforts of Dr. S. F. Kirkpatrick, then professor of Metallurgy at Queen's University, and Mr. M. J. O'Brien of Ottawa. The early plant has expanded to the present large operations of Deloro Smelting and Refining Company Limited and has been a vital contributor to the cobalt requirements of the allied nations through two world wars. Deloro was the first of the world producers of cobalt on a commercial scale and still retains top position in North America after 46 years of operations.

The picture on the left illustrates the reduction of cobalt oxide to metal by applied heat as a last stage in the refining process.



The pouring operations in the silver bullion room producing bars of silver ready for market.



This photograph shows dimensional checking of gas turbine nozzle guide vanes. Cobalt alloy is used in the manufacture of jet engine parts, such as nozzle guide vanes, to be subjected to high temperatures. The jet engine in this case is the Avro Canada Orenda axial-flow turbo-jet.

way contractors in the Ottawa Valley, took over the King discoveries with spectacular success in Cobalt and later in Gowganda. Earl and his associates of New York acquired the Hebert finds and incorporated the Nipissing, biggest winner of them all. J. R. Booth took over the McKinley-Darragh properties while Trethewey financed his own develop-

ments with the assistance of Col. W. R. Leonard of St. Catharines on the Coniagas.

A group of farmers and small merchants in and around New Liskeard, even before the first cobalt discovery, had formed the Temiskaming and Hudson Bay Mining Company, and had kept a small group of prospectors in the field. They had staked



A view of the old LaRose property with the new headframe and buildings of the Silver Miller Mines in the background.

G. M. Dallyn

claims around Larder Lake and acquired iron interests in Timagami. They were quickly on the scene after the first silver finds and secured 360 acres in several groups. One of these properties, later known as the Silver Queen was sold for \$810,000. Another property, which was mined for years ultimately shared \$1,199,894 in dividends and the stock which once sold for eight cents a share later brought \$290. Members of the original group made fortunes which went to build up several large northern enterprises.

In their first 33 years of active life the mines of the Cobalt camp shipped a total of 366,972 tons of rich silver ore plus hundreds of tons of bullion. The total production exceeded 450,000,000 ounces of silver for a value of more than \$260,000,000. From the total production of this new mineral wealth there was distributed \$109,000,000 in dividends. To ship the ores and bullion extracted from the mines of the camp would take a train of freight cars nearly a hundred miles long.

As was inevitable, the cream was skimmed off and falling prices in the thirties hit Cobalt hard. World War II and a new demand for cobalt put the town back on its feet. Cobalt Products Limited, which subsequently sold out to Silanco Mining and

Below:—A miner drilling the roof of an underground stope.





Part of the new smelter of Cobalt Chemicals Limited which is expected to begin operations this year. The plant will cover some 300,000 square feet and comprise 12 or more buildings.

Refining Company, acquired a number of mines and erected a mill. The later Silanco plan called for the erection of a smelter to treat the cobalt ores to the final stage for complete extraction of all metallic content.

Confident that Cobalt is far from finished, several new companies have undertaken underground development within the last four or five years and in addition new organizations have staked large areas and have been following geophysical and geological methods of testing their holdings.

The celebration during the week of 5th July 1953 to mark the close of Cobalt's first half-century and the hopeful opening of a new era was planned as a full-scale revival of the days of the early rush. The town prepared to open its hospitable doors to ten times the number of its normal population (now 2,285) during the big week, when old-timers of the prospecting trails would converge again on the gateway to Northern Ontario's mineral belt from points as far distant as Yellowknife and New Brunswick.

Pictured here is one of the Cobalt 60 Therapy Units (the Cobalt Bomb) for the treatment of deep-seated cancer. This one, installed in the cancer clinic at Victoria Hospital in London, Ontario, by the Ontario Cancer Treatment and Research Foundation is one of the first two used in the world. It was built by a Canadian crown corporation and the cobalt source of this powerful unit was radio-activated in Canada's atomic pile at Chalk River. These units deliver a more lethal dose to deep-seated tumours, with less skin reaction, than can be achieved with conventional forms of radiation therapy.





The Drake Memorial at Drake's Bay.

Max M. Murrey

Elizabeth, Queen of California

by CORDAY MACKAY

IT IS WELL KNOWN that Britain's overseas expansion began in the reign of Elizabeth I. That the English queen was once proclaimed ruler of part of California, called for a brief period *Nova Albion*, is less well known. This was proved only recently, in the following strange manner.

Nearly four hundred years ago, Sir Francis Drake, special emissary of the Virgin Queen, took part in a ceremony on a Pacific shore. A sixpence bearing the Queen's likeness was imbedded in a plate of brass. Chiselled words on the plate's surface names Elizabeth as ruler. Nailed to a "firme and great poste", the proclamation was left to its fate.

Historians have since argued as to the exact spot where this ceremony took place. Some claimed it was on the shores of San Francisco Bay. Most doubted that it ever happened at all. Only one account, published

in 1628, in the book *The World Encompassed by Sir Francis Drake*, has survived. Its author, Francis Fletcher, chaplain of the small fleet, Drake once dubbed "Ye falsest knave that lives". Thus Fletcher's picturesque description of the proclamation ceremony came to be regarded as probable fancy.

The simple accident of a flat tire on a lonely California road proved that the English chaplain had not lied. Beryle Shinn, a twenty-five year old department store employee took a drive in the rolling hills of Marin county. After changing his punctured tire he climbed a grassy hillside near the road. Among scattered stones he found a small rectangle of old metal. Thinking that it might prove useful, he tossed it in the car and continued his outing. In so doing, he provided a link with the year 1577, when in

ELIZABETH, QUEEN OF CALIFORNIA

the dark of an autumn evening, five ships slipped out of Plymouth harbour. Captain Francis Drake had informed his friends that he was off to Alexandria to buy currants. In actual fact he was sailing under secret sanction from the Queen, with the avowed purpose of wreaking vengeance upon the Spanish king for "divers injuries". The mariners were also to dispute Philip's claim that the whole Pacific was his "lake", his own special trade preserve.

The appearance of Drake in the Pacific threw a challenge to Philip's viceroys on the west coast of America. The sleepy Spanish settlements from Peru to Mexico were startled from their security by the invaders. In spite of all their efforts, the triumphal progress of *el Draque* (the Dragon) continued though his fleet had been reduced to his flag

ship, the *Golden Hind*, before he entered the Pacific.

At last, with the holds of the *Golden Hind* crammed with treasure, Drake's thoughts turned to the voyage home. Should he attempt to find the northwest passage, or to be the first Englishman to circumnavigate the globe? It seems that the former plan gained ascendancy in his mind. How far north he sailed is not known, but at 48°N. he gave orders to return, and the thankful mariners found themselves heading south once more. The weather had been abominable, with "stinking fogges" and heavy gales, and they were "overborne" by the intense cold though the month was June when they dropped anchor in a convenient harbour at 38° 30' to prepare the ship for the trip home.

Above the steep cliffs of their "har-

The Cliffs of Dover at Drake's Bay, California, have a marked similarity to their English namesake.

Max M. Murray



borough", so strongly reminiscent of home that they named them the Cliffs of Dover, lay a country inhabited by a friendly and peaceable heathen race who looked on the visitors as gods. Drake was so shocked by the obvious signs of worship of himself and his men that he held a Christian service on shore, reading from his prayer book and leading the singing of psalms. Thus on 24 June, 1579, took place the first religious service in English ever held within the preserves of the North American savage. A monument in Golden Gate Park in San Francisco, the Prayer Book Cross, commemorates this event.

Three days later the English camp was visited by the king of the people — the Hioh. He entreated Drake to be their king, but the wary captain, prepared for such an offer, said he would make his Queen ruler of the new realm. In fact, the armourer and the ship's carpenter had been given a commission the night before. Chaplain Fletcher described the ceremony which ensued.

"Our Generall caused to be set up a plate of brasse, fast nailed to a great and firme poste; whereon is engraven Her Grace's name, and the day and year of our arrival here, and of the free giving up, and of the province and kingdome, both by the king and people, into her Majestie's hands, together with her highness' picture, and armes in a piece of sixpence, current English monie, showing itself by a hole made of purpose through the plate; underneath was likewise engraven the name of our generall."

Having thus laid claim to the new land, Drake finished caulking the seams of the *Golden Hind*, and amid the lamentations of the native folk, set sail for home.

At first the plate of brass was probably unmolested. Perhaps the Hioh and his people, remembering the richly apparelled and kindly white men, held their ceremonies around it, and prayed that the white gods would return. Then, either memory faded or hostile tribes made war on Queen Bess's first American subjects. The plate of brass was hewn from its fastenings with stone adzes. It is doubtful if Spanish eyes ever saw the challenging, chiselled words. In time the Spanish lost their hold on the Pacific lands. A new people struggled over the high Sierras to create the state of California. The Gold Rush came and went. San Francisco grew from a fishing village to a metropolis. The ancient relic lay unnoticed on a hillside while time laid a thick patina over its historic words.

Three hundred and fifty years had come and gone before Beryle Shinn had the punctured tire. Then, for months the odd piece of metal lay forgotten. Finally he gave it a cleaning that brought the crude letters to view. After consulting a friend he got in touch with Dr. Bolton, a well-known historian at the University of California at Berkeley. Now the plate belonged to history.

Quite fittingly, the announcement of the discovery was made at a meeting of the California Historical Society, in the Sir Francis Drake Hotel in San Francisco, on 6 April, 1937.

With the announcement, another chapter in the story of the relic came to light. The newspapers next day carried a full story of the find. That night a chauffeur, William Caldeira, employed by Leon Bocqueraz, vice-president of the Bank of America, read the account and memory stirred.

Could this be his curious piece of metal? Investigation proved that it was, and he told his story. In 1932 he had driven his employer to a spot in Marin County, not far from Drake's Bay, for a day's hunting. While waiting for him, Caldeira picked up a piece of metal at a spot about one and one half



Right:—Drake's "plate of brasse", found in Marin County, now in the University of California.

San Francisco Chronicle

ELIZABETH, QUEEN OF CALIFORNIA

miles from the bay. After washing it in a creek, he could make out some lettering and name Drake at the bottom. Unaware of its significance, he threw it in the car and carried it back to the city. Several weeks later, he tossed it out again when he was driving in Marin County not far from San Quentin.

Here it lay until Beryle Shinn of Oakland found it five years later. Through him, it came into the hands of experts and its future seemed secure. There remained thorough and exhaustive tests to establish its authenticity.

Dr. Colin Fink, of Columbia University, assisted by George R. Harrison, of the Massachusetts Institute of Technology, a recognized expert in spectroscopy, undertook the task. To aid the research, they used reports on the climate, geology and soils of the area. Aware that someone familiar with Chaplain Fletcher's book might be trying to hoax the historians, they checked every possibility. Study convinced them that such an aggregate of metals and carbonaceous particles as were found adhering to the grooves of the letters could not have been produced artificially. Furthermore, tests

proved that the metal was sixteenth century brass and the plate was not produced by the modern method of rolling, but by hammering, the common practice in the time of Drake. From the evidence, Dr. Fink and his assistants concluded that the plate was genuine.

In this way the tale of four centuries was completed. Shinn brought the plate to public notice, Caldeira found the place where it had lain for so long, and the scientists proved its authenticity. After careful polishing, it was deposited in the Bancroft Library in the University of California at Berkeley, where all may read the proclamation engraved on the tablet!

BEE IT KNOWN UNTO ALL MEN
BY THESE PRESENTS

JUNE 17 1579

BY THE GRACE OF GOD AND IN
THE NAME OF HERR MAJESTIE
QUEEN ELIZABETH OF ENGLAND
AND HERR SUCCESSORS FOR
EVER. I TAKE POSSESSION OF THIS
KINGDOME WHOSE KING
AND PEOPLE FREELY RESIGNE
THEIR RIGHT AND TITLE IN
THE WHOLE LAND UNTO HERR
MAJESTIES KEEPEING. NOW
NAMED BY ME AND TO BEE
KNOWNE UNTO ALL MEN AS
NOVA ALBION.

FRANCIS DRAKE





Fishing with Horse and Ladder

by LYN HARRINGTON

Photographs by RICHARD HARRINGTON

EDMUND BRIAN of Minudie, Nova Scotia, is the last of the shad fishermen to carry on in the old style. Where others have turned to using "drift" boats to tend their nets, he alone still fishes with horse and ladder. For forty years he has brought in the shad in this way, from May to September, as his grandfather did ninety years ago.

His fishing lease is particularly well adapted to this method, for it stretches out from the diked marshlands reclaimed from Cumberland Basin at the head of the Bay of Fundy. Here Fundy's phenomenal tides, up to thirty feet in height, rush in over the gently shelving shore to lap against the dike. When the muddy waters ebb, the gleaming tidal flats stretch for miles.

Then Brian hitches up the horse, attaches

a ladder underneath the wagon, and sets out for his nets, three miles from the shingled, weather-beaten shacks just inside the dike. He is usually accompanied by his son and a neighbour. Twice a day, at ebb-tide, they make the trip from their farmhouse to the shacks and out on the flats. It means two round-trips of eighteen miles each every day of the season. According to the tide, the trips may take place at any hour of the twenty-four, in brilliant sunshine or at night, in rain, wind or fog.

The shad is not one of Canada's more important fish, commercially. Practically all of the 2,769,000 pounds recorded in 1950 came from the Maritime Provinces, especially New Brunswick. The Bay of Fundy is responsible for the greatest catch.

At top:—At these shingled fishing shacks Edmund Brian harnesses his horse and sets out on his drive past the dike and across the tidal flats.



Long lines of stakes support 368 feet of net in which the shad become entangled at high tide. The poles extend twelve feet above ground, but tides rise higher than that.

The silvery-blue shad, weighing two to three pounds each, come in with the tide to feed on the fat white shad-worms, which form their chief diet.

Brian clucks to his horse, and it plods across the soft mud. The route leads along a line of stakes set up at fifteen-foot intervals. These guide-posts are literally a life-line in time of fog or darkness. With the tide creeping up behind, it is essential to take the shortest route to return to shore. Without the stakes the fishermen could easily lose their way, and so lose their race with the tide.

Three miles out from shore are the nets, strung between posts jutting twelve feet above the sand. Each hardwood post is guyed to stakes, which must be hammered down on each trip. The surging tide rocks them back and forth and would soon pull them out.

Gulls spring screaming into the air as the fishermen approach. Their powerful beaks ruin some of the fish caught by their gills

The fish may be in any part of the net, so that the wagon and a ladder are brought into use to collect many of them. Shad are fat enough to fry in their own grease.





Top left:—After the fish are collected the ropes at the top of the net must be tightened. Holes are frequently torn by the larger fish or by driftwood.

Above:—On the way home the fishermen pause to replace a guide-post that has been washed out. These posts are essential for work at night or in fog.

in the nets; a few, not so badly pecked, can be saved for home use. Fish hanging low in the net may be shaken loose. Those near the top can be reached only by ladder. In calm weather this is not difficult; but in a storm the poles, nets and ladder sway in the wind.

Sometimes the catch may be large (425 fish), and the men must work swiftly to make their collection. On the other hand, it may be as few as thirteen fish, in which case the men make use of their time out on the mud flats to splice lines, drive posts deeper into the mud, or put up another pole and net. Occasionally a salmon or sturgeon may be caught. This brings a much better price than the 25 cents paid for each shad.

Driftwood, and sometimes the larger fish, tears holes in the nets. There is no time for mending on the spot, and the nets are taken down to be repaired on shore. For the tide begins to creep back even while the men are working and the water laps at the horse's hocks on the return trip. Once back at the shacks, the Brians split the shad down the spine and remove the backbone, preparing the catch for the Amherst market.

Below:—The Minudie shad are split and have their backbones removed before being sent to market. In years of abundance part of the catch may be salted and stored away.



EDITOR'S NOTE-BOOK

W. V. Pennell (*Hong Kong Looks to a Greater Future*) has been actively engaged in journalism in China and the Far East for some forty years. War service took him to New Delhi for editorial and broadcasting work for the Ministry of Information, followed by a spell in Malaya as chief editor of the British Far Eastern Broadcasting Service in Singapore. Returning to Hong Kong four years ago, he is now associate editor of the *South China Morning Post*, Hong Kong's leading English-language newspaper. — W. A. Collins (*The Sportsman's Special*) is a free-lance writer who lives in Peterborough. His particular interest is the Ontario scene. — Mabel E. Jordon (*The Big Wheel on Perry Creek*) lives in Calgary and in East Kootenay. Her engineer husband holds the placer ground round the big wheel about which she writes. — L. Carson Brown (*Cobalt Blooms Again*), a journalist of wide experience, is director of publicity for the Ontario Department of Mines. — Corday Mackay (*Elizabeth, Queen of California*),

former Vancouver librarian, is well known for her historical articles on the development of Canada through the fur trade. Now married, Mrs. Atkinson continues her historical research in California, where she is living. — Lyn and Richard Harrington (*Fishing with Horse and Ladder*) still find interesting aspects of the Canadian scene to put before our readers in story and picture.

* * *

Fellows

It is very much regretted that in the list of Fellows of the Society published in the May issue, the name of Dr. J. B. Tyrrell was omitted. Dr. Tyrrell was the first Honorary President of the Society on its formation in 1929 and we are glad to say he is still an Honorary President. He is, moreover, a Life Fellow and has always encouraged the Society's work.

Since publication of the list, Major-General W. H. P. Elkins, C.B., C.B.E., D.S.O., has been elected a Fellow.

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AMONGST THE NEW BOOKS

Hong Kong
by Harold Ingrams
(H. M. Stationery Office: U.K. Information Office,
Ottawa, \$6.25)

This volume sets the pace for a new series of government sponsored books on British dependencies, to be known as the Corona Library. The author's wide range of colonial experience has enabled him, in this inaugural volume, to set a standard that will be a challenge to its successors. Mr. Ingrams, accompanied by his wife, was sent officially to Hong Kong in order to produce a book for the general educated public "dealing authoritatively and comprehensively with the geography, history, economics, politics, social conditions and administration of the colony of Hong Kong." He has done all these things, and at times one feels a little bewildered with the mass of information gathered into 307 pages, and that one can hardly see the wood for the trees. This however, merely seems to emphasize Mr. Ingrams' point that one of the most serious dangers that the Government has to deal with in this colony is the problem of overcrowding. But he tells us that Hong Kong has always opposed the idea of restricting immigration, for the constant increase of population from all sources is good for trade. By way of illustration he tells us that this great trading port has the atmosphere of a gigantic department store and railway station combined, where it is always the week before Christmas and always the rush hour.

The author's affection for the Chinese has aided him in obtaining clear insight into the vast and complicated problems that are packed into so confined an area. The Chinese population appreciates the protection which British law gives them, but at heart they are Chinese citizens. The chapters dealing with the early trading conditions which finally led to the annexation of the territory in 1841 are particularly interesting. Early mistakes have been amply atoned for by the way in which the government has shouldered the responsibilities entailed by too rapid development of trade and population. Problems of health, sanitation, and education have been wrestled with successfully under conditions where water is always in short supply and overcrowding is permanent. The political, social and economic questions are most ably handled and their interpretation is greatly helped by excellent illustrations and an abundance of maps. The concise and balanced view which the author presents arouses our warm sympathy for the strange fortunes of this little island whose vast harbour gathers in ships from every corner of the earth.

Mention should also be made of the very full and informative bibliography.

S. SEELEY

The Face of Ulster

by Denis O'D. Hanna

(Face of Britain Series, B. T. Batsford Ltd..

London; Clarke, Irwin, Toronto, \$8.00)

In some 130 pages and with the aid of numerous photographs and one map Mr. Hanna describes Ulster in terms of its buildings, history and folklore. At least one historical anecdote or piece of Irish lore goes with the description of each building which receives the author's attention. "The Face of Ulster" is expressed by way of its historical architecture rather than its present day landscapes.

J. D. CHAPMAN

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Lincolnshire and the Fens*by W. M. Barley*

(B. T. Batsford: Clarke, Irwin, Toronto, \$3.50)

To most travellers from America, Lincolnshire is chiefly memorable for its three glorious cathedrals, Lincoln, Ely and Peterborough. Limitations of time usually permit little more than a glance from train or bus at the many other attractions of this very lovely part of England. With this book written by a Lincolnshire man, it is possible to gain a comprehensive knowledge of its history and topography, see its "wide-horizoned" landscapes, visit its matchless country towns, its ancient castles and country mansions and some of the most wonderful parish churches in England; Mr. Barley cites, as among the more notable, Walpole St. Peter, Heckington, Louth of the lovely spire, and Boston Stump.

The abundance of place-names is fairly bewildering, but must be most endearing to Lincolnshire people, particularly to those who now live across the seas. In Australia, especially, one meets with many Lincolnshire names, dating from the explorations of Matthew Flinders, Sir John Franklin and other navigators who from the coast towns "followed the sea". How much, too, both old and new worlds owe to the great "Non-conformist" preachers who came from small villages in Lincolnshire and the Fens, the two Wesleys, famous Baptist and Congregational leaders, and noted Quakers.

Of surpassing interest is the chapter on the Fens and the Isle of Axholme where Mr. Barley tells the story of this curious and romantic land from the days of Hereward the Wake to last year, when it had achieved an amazing prosperity and the reputation of being one of the wealthiest agricultural regions in England. But, alas! we all know what terrible havoc has been wrought along the east coast and particularly on that of Lincolnshire by the recent devastating winds and tides so that it will take many years and the outpouring of the generous sympathy of the world to restore this valuable land. Yet we can be confident that the indomitable spirit of the people will win the fight as it has done many times through the years. As Mr. Barley says "In no part of the world are people to be deterred from living on land which is liable to flood".

The illustrations, 80 or so in number, are from photographs by the author and others, and are very beautiful. They give, in the words of the jacket, "an historical epitome of the changing face of the area from the submerged prehistoric forest at Mablethorpe, air-views of the Romano-British field system . . . down to an impressive series of views of the buildings of medieval, Tudor, Renaissance, and Georgian times. And interspersed with these buildings are photographs of the landscape itself; the ancient strip-cultivation of the Wold, the field patterns of the Fens and many characteristic villages".

A satisfying index, map, and frequent page-headings complete this delightful book.

F. E. FORSEY

Golden Earth: Travels in Burma*by Norman Lewis*

(Clarke, Irwin, Toronto, \$3.75)

Lewis is not only an experienced traveller, he is also an experienced writer, and the combination is a happy one. This account of his recent travels in Burma makes excellent reading, and it is also a book of some significance, and one which economic do-gooders might well ponder over.

He finds that the Burmese, now that they have become a self-governing people, are a good deal happier than we are, but not because of any new-found freedom; it's merely that they have less to worry about. The country, he finds, is in a state of confusion hard to imagine. Travel there today is actually slower than it was in the days of Marco Polo, some six hundred and sixty years ago. Not only slower, says Lewis, but also more dangerous.

Burma, he finds, has taken all too readily to all sorts of western gadgets, loud speakers, fluorescent lights, loud cacophonous music, and the tinsel glitter of modern decoration, but has little, if any, idea of the actual values and virtues of our civilization.

In spite of the present chaos, and the fact that the people find themselves not a whit 'freer' than they were, the author sees great hope for the future of Burma, a rich and beautiful country, as the illustrations show.

DOUGLAS LEECHMAN

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Europe

Second Edition

by S. Van Valkenburg and C. C. Held

(John Wiley and Sons Inc., \$9.00)

Is it really revised or just a second printing with superficial amendments? If rewritten are the changes for the better? Is it so completely rewritten that the former valuable and distinctive features have been lost and the new work merely capitalizes on the reputation of the original? These are some of the questions which every reader asks while awaiting the new edition of a good, but old, book.

The second edition of *Europe* by S. Van Valkenburg and C. C. Held lives up to expectations in almost all respects. The death of E. Huntingdon, the co-author of the first edition, made it necessary for Professor Van Valkenburg, Director of the Graduate School of Geography at Clark University, to find another collaborator. His choice of Professor C. C. Held, himself a graduate of Clark and presently teaching at the University of Nebraska, seems to have been a very fortunate one.

The two authors have produced a new book (only 5 of the 46 chapters are not completely rewritten) within the framework of the old one. All statistical information is brought as up to date as possible, sections on Scandinavia, Germany and European Russia are greatly enlarged and many of the old maps are redrawn and new ones added. In addition photographs appear for the first time. These photographs are well used to highlight some of the geographic 'personality' of the regions rather than indiscriminately included in order that the book may have sales appeal.

The work attempts "... to describe the patterns of distribution of phenomena — physical, human and economic — in Europe and to analyze the significance of such patterns, especially by relating one to another." Not only is this a laudable statement of the geographical approach but it outlines just what the book accomplishes. The general arrangement differs little from the original. The first 14 chapters (approximately one-third of the book) deal with Europe as a whole. The physical divisions of the continent are well covered in 3 chapters while soil and vegetation are dealt with in one with the addition of a new vegetation map. "Use of the Land and Ocean" gives greater weight to the fishing activities of Europe than the first edition and the chapter "Power and Minerals" is effectively enlarged and includes a new map on the iron, coal and petroleum resources of the continent. The chapter entitled "Peoples and Political Units" replaces the 2 former ones on "Racial Characteristics" and "Ethnographic Divisions and Nations" and puts more emphasis on the political evolution and present circumstance of the states of Europe.

The remaining two-thirds of the book is devoted to the political units. "No particular attempt has been made to group the countries into a few broad regions (such as Mediterranean area, central Europe, western

Europe), since any definite grouping can justifiably be criticized as to composition." The arrangement followed, however, commences in Scandinavia and swings round the peripheral countries to the Mediterranean before going inland to central and south-central Europe and, finally, to the U.S.S.R. Such an arrangement seems quite suitable for teaching purposes. There is "... no standard or uniform presentation of material ..." for each of the countries since "... the significance of the various factors differs in different areas ..." but the general relationship of each country to its regional and European setting is well dealt with.

Throughout this "... modified 'regional' treatment of the various countries ...", as in the first section, the numerous maps are very clear and depict distributional relationships not shown in atlas maps and add greatly to the textual material. It is noticeable that many of the new maps illustrate distribution of population or mineral and industrial regions. It seems to this reviewer that a better balance would have been maintained if the first edition dot maps of crops and animals had been redrawn and included instead of deleted.

The last 3 chapters deal with the U.S.S.R. As the text points out, so long as Europe is considered to extend to the Ural Mountains the European U.S.S.R. must be covered, but in so doing one treats less than half of that vast Eurasian country. The answer would seem to lie in dispensing with the Urals as the eastern boundary of Europe and replacing them with a more realistic one. They are usually regarded as nothing more than a boundary of convenience. However, in lieu of this, the authors while stressing Russia in Europe, attempt to fit it into the whole. The book concludes with an appendix providing the latest population figures for each country and its major cities, and a valuable, chapter by chapter, bibliography.

All in all *Europe* has been thoroughly revised, the rewritten sections are generally improvements over the first edition while the whole maintains the recommendable features of the original. This is possibly the most valuable addition to the ranks of school and university texts on Europe since the war. J. D. CHAPMAN

* * *

Chibougamau Venture

by Larry Wilson

(Chibougamau Pub. Co., Montreal, \$2.00)

This is a readable sketch of the Chibougamau mining district in Quebec which lies about three hundred miles north of Montreal. This promises to be one of the great mining centres of the continent, according to the beliefs and predictions of those who have investments there. The author, who knows the country as well as most, is confident of its future. There is an interesting account of the history of Chibougamau, with details of prospecting, geological surveys, natural history, trapping, and many other aspects of life in the North Woods. Of special value to those who know this area, it will be welcomed also by others interested in the outdoors.

DOUGLAS LEECHMAN